

## ABSTRACT OF THE DISCLOSURE

A semiconductor device manufacture method has the steps of: (a) forming a polishing stopper layer over a semiconductor substrate; (b) etching the semiconductor substrate to form a trench; (c) 5 forming a first liner insulating layer of silicon oxide over the surface of the trench; (d) forming a second liner insulating layer of silicon nitride over the first liner insulating layer, the second liner insulating layer having a thickness of at least 20 nm or at most 8 nm; (e1) depositing a 10 third liner insulating layer of silicon oxide over the second liner insulating layer by plasma CVD at a first bias; and (e2) depositing an isolation layer of silicon oxide by plasma CVD at a second bias higher than the first bias, the isolation layer burying a recess defined by the third liner insulating layer.